



| | |
|-----------------|---------------|
| WEAR | NORMAL |
| CONTAMINATION | NORMAL |
| FLUID CONDITION | NORMAL |

Machine Id
110027

Component
Diesel Engine

Fluid
SHELL ROTELLA T 15W40 (--- QTS)

RECOMMENDATION

Resample at the next service interval to monitor.

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|----------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Sample Number | | Client Info | | IL0032961 | IL0027452 | IL0027737 |
| Sample Date | | Client Info | | 06 Feb 2024 | 18 Jul 2023 | 25 Oct 2022 |
| Machine Age | mls | Client Info | | 230207 | 196498 | 167470 |
| Oil Age | mls | Client Info | | 33709 | 29028 | 40494 |
| Filter Age | mls | Client Info | | 33709 | 29028 | 40494 |
| Oil Changed | | Client Info | | Changed | Changed | Changed |
| Filter Changed | | Client Info | | Changed | Changed | Changed |
| Sample Status | | | | NORMAL | NORMAL | NORMAL |

WEAR

All component wear rates are normal.

| | | | | | | |
|--------------|--------|-------------|------|--------------|------|------|
| Iron | ppm | ASTM D5185m | >100 | 20 | 16 | 23 |
| Chromium | ppm | ASTM D5185m | >20 | <1 | <1 | 1 |
| Nickel | ppm | ASTM D5185m | >4 | 0 | 0 | 0 |
| Titanium | ppm | ASTM D5185m | | <1 | 0 | <1 |
| Silver | ppm | ASTM D5185m | >3 | 0 | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >20 | 3 | 3 | 4 |
| Lead | ppm | ASTM D5185m | >40 | <1 | 3 | 8 |
| Copper | ppm | ASTM D5185m | >330 | 6 | 6 | 7 |
| Tin | ppm | ASTM D5185m | >15 | 0 | 0 | <1 |
| Vanadium | ppm | ASTM D5185m | | 0 | 0 | <1 |
| White Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE | NONE |

CONTAMINATION

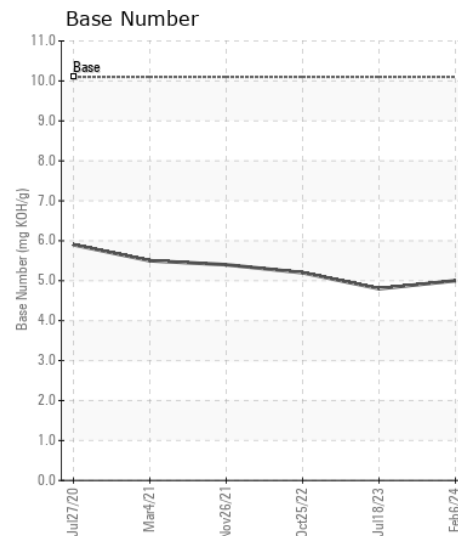
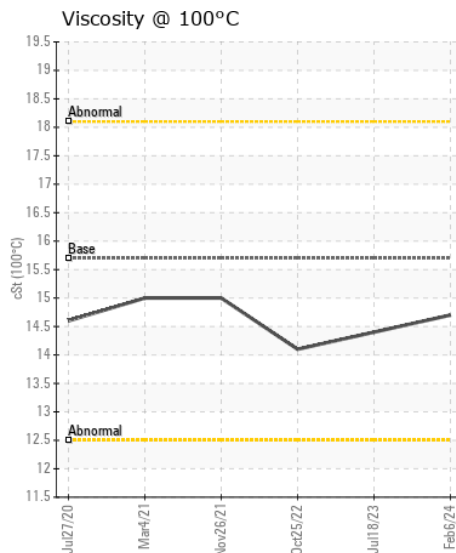
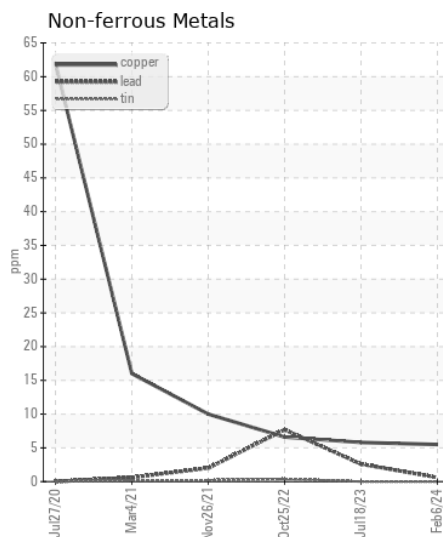
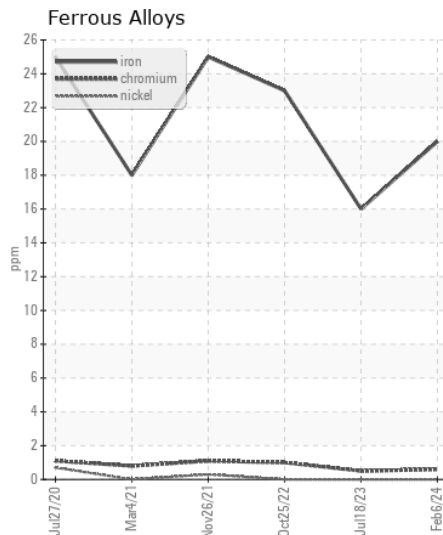
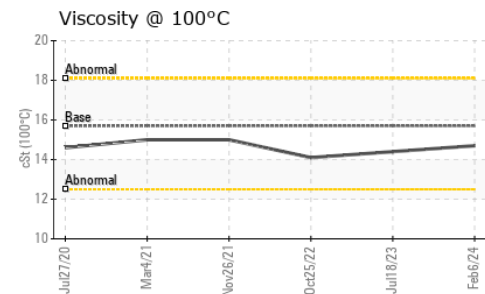
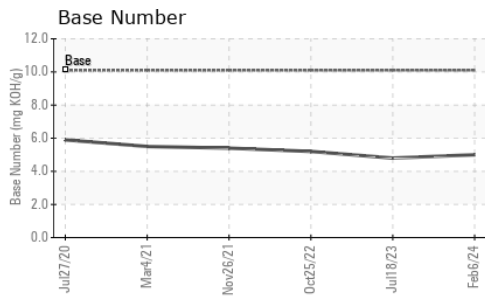
There is no indication of any contamination in the oil.

| | | | | | | |
|------------------|----------|-------------|-------|----------------|-------|-------|
| Silicon | ppm | ASTM D5185m | >25 | 10 | 0 | 22 |
| Potassium | ppm | ASTM D5185m | >20 | 15 | 5 | 7 |
| Fuel | | WC Method | >5 | <1.0 | <1.0 | <1.0 |
| Water | | WC Method | >0.2 | NEG | NEG | NEG |
| Glycol | | WC Method | | NEG | NEG | NEG |
| Soot % | % | *ASTM D7844 | >3 | 1.1 | 1 | 1.6 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | 10.2 | 10.6 | 12.7 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | 26.2 | 24.0 | 30.8 |
| Silt | scalar | *Visual | NONE | NONE | NONE | NONE |
| Debris | scalar | *Visual | NONE | NONE | NONE | NONE |
| Sand/Dirt | scalar | *Visual | NONE | NONE | NONE | NONE |
| Appearance | scalar | *Visual | NORML | NORML | NORML | NORML |
| Odor | scalar | *Visual | NORML | NORML | NORML | NORML |
| Emulsified Water | scalar | *Visual | >0.2 | NEG | NEG | NEG |

FLUID CONDITION

The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

| | | | | | | |
|------------------|----------|-------------|------|-------------|------|------|
| Sodium | ppm | ASTM D5185m | | 1 | <1 | 3 |
| Boron | ppm | ASTM D5185m | 316 | 25 | 11 | 13 |
| Barium | ppm | ASTM D5185m | 0.0 | 0 | 2 | 0 |
| Molybdenum | ppm | ASTM D5185m | 1.2 | 33 | 93 | 73 |
| Manganese | ppm | ASTM D5185m | | 0 | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | 24 | 154 | 34 | 46 |
| Calcium | ppm | ASTM D5185m | 2292 | 2256 | 2203 | 2403 |
| Phosphorus | ppm | ASTM D5185m | 1064 | 962 | 898 | 942 |
| Zinc | ppm | ASTM D5185m | 1160 | 1287 | 1122 | 1176 |
| Sulfur | ppm | ASTM D5185m | 4996 | 3500 | 3770 | 4142 |
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | 20.1 | 17.8 | 22.6 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 10.1 | 5.0 | 4.8 | 5.2 |
| Visc @ 100°C | cSt | ASTM D445 | 15.7 | 14.7 | 14.4 | 14.1 |



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513

Sample No. : IL0032961

Lab Number : 06087079

Unique Number : 10874524

Test Package : FLEET

Received : 13 Feb 2024

Tested : 14 Feb 2024

Diagnosed : 14 Feb 2024 - Don Baldrige

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To discuss this sample report, contact Customer Service at 1-800-237-1369.

* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)